Vishnu Kadiyala

Applied Machine Learning | Predictive Modeling | Data Analytics

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Summary

Ph.D. candidate specializing in applied machine learning and predictive modeling on large-scale real-world datasets. Experienced developing scalable deep learning systems for forecasting, anomaly detection, and data-driven analytics. Strong background in transforming complex datasets into interpretable models that support decision-making and product optimization.

Core Skills

Languages: Python, MATLAB
Machine Learning: Statistical Modeling, Predictive Modeling, Deep Learning, Transformers, CNNs, Diffusion Models
Data Analytics: Feature Engineering, Time-Series Modeling, Experiment Design, Model Evaluation
Tools: TensorFlow, Keras, Pandas, Xarray, NetCDF, Linux, HPC/SLURM

Modeling Experience

- Predictive modeling and forecasting from large-scale datasets
- Time-series analysis and anomaly detection
- Model interpretability and evaluation metrics
- Experimental design and validation workflows

Experience

Graduate Researcher — NSF AI2ES Jan 2024 – Present

- Developed predictive modeling framework using transformer architectures for forecasting from irregular large-scale environmental datasets.
- Achieved **13× improvement** over classical rainfall estimation methods using deep learning.
- Built scalable data pipelines enabling efficient processing and analysis of large sensor datasets.
- Designed evaluation protocols ensuring reproducibility and robust model comparison.

Graduate Researcher — NASA GeoCARB Jan 2021 – May 2023

- Developed U-Net model achieving **95% accuracy** for methane hotspot detection using satellite imagery.
- Built anomaly detection pipeline improving performance from **80% to 90.2%**.
- Performed feature engineering and model validation for geospatial datasets.

Selected Projects

- Transformer-based spatio-temporal forecasting for irregular environmental data.
- Deep learning pipeline for document structure recognition (99% detection accuracy).
- Data-driven anomaly detection in large time-series datasets.

Publications (Selected)

- Estimating Statewide Atmospheric Visibility From Camera Images — AMS 2025
- Carbon-Based Pollutant Monitoring during GeoCarb-TRACER — AMS 2024
- Localization of Tables and Plots in Documents Using Deep Neural Networks (Master's Thesis)

Education

Ph.D. Computer Science (Expected 2027) — University of Oklahoma
M.S. Electrical & Computer Engineering — University of Oklahoma
B.E. Electronics & Communication Engineering — KLE Technological University